REMARKS

Claims 1 and 12 have been amended. Claim 13 has been cancelled. Claims 1-12 and 14-17 remain for further consideration. No new matter has been added.

The objections and rejections shall be taken up in the order presented in the Official Action.

1. The specification currently stands objected to for informalities. The specification has been amended to correct the typographical error referring to FIG. 5.

1-3. Claims 1-8, 11 and 12-17 currently stand rejected under 35 U.S.C. §103(a) for allegedly being obvious in view of US Patent 6,111,280 to Gardener et al. (hereinafter "Gardener").

CLAIM 1

As amended, claim 1 recites an integrated gas sensor, that includes:

> "an integrated gas sensor, comprising a gas-sensitive semiconductor film in contact with at least one contact electrode, a field electrode being disposed under the gas-sensitive semiconductor film and disposed above and electrically in contact with a semiconductive substrate, and an insulator layer disposed in between the field electrode and the gas-sensitive semiconductor film, where the insulator layer has a thickness that is less than or equal to approximately ten times the Debye length L_D of the gas-sensitive semiconductor film and corresponding to the insulator layer, where the Debye length L_D is given by:
>
> $$L_D = \sqrt{\frac{\varepsilon\varepsilon_0 kT}{q^2 N}}$$
>
> where T is the temperature, ε is the relative permittivity of the material of the gas-sensitive semiconductor film, ε_0 is the absolute permittivity, k is the Boltzmann constant, N is the charge-carrier concentration and q is the elementary charge." (emphasis added, cl. 1)

The scope and content of Gardener indicates that this prior art reference is incapable of supporting an obviousness rejection of claim 1.

As amended, claim 1 recites that the field electrode is disposed under the gas-sensitive semiconductor film, and above and electrically in contact with a semiconductive substrate. Claim 1 further structurally recites that an insulator layer is disposed in between the field electrode and the gas-sensitive semiconductor film. The scope and content of Gardener fails to disclose such a feature, since Gardener only teaches a silicon on insulator (SOI) device. Specifically, claim 1 recites that the field electrode is electrically in contact with the semiconductive substrate. In contrast, the electrode 9 of Gardener is separated from the substrate 2 by an insulator layer 3. As known, SOI-based devices differ from conventional silicon-built devices in that the silicon junction is above an electrical insulator, typically silicon dioxide. Gardener discloses this conventional SOI structure since the junctions are located above the insulator layer 3. FIG. 1A of Gardener is reproduced below in the interest of convenience, and clearly shows that the field electrode is NOT in electrical contract with the substrate 2.

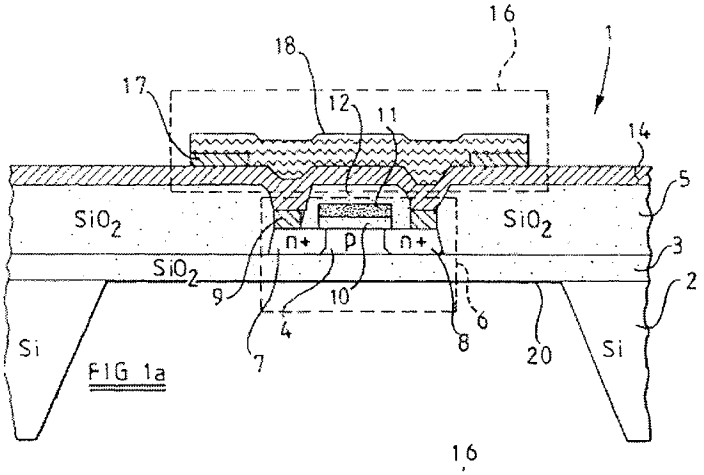


FIG 1a

Accordingly, it is respectfully submitted that the scope and content of the prior art fails to support an obviousness rejection of claim 1 since the prior art fails to disclose the feature of the field electrode being electrically in contact with the semiconductive substrate.

CLAIM 12

As amended, claim 12 recites a gas sensor that includes:

> "a semiconductive substrate;
> a gas-sensitive semiconductor film;
> at least one contact electrode in electrical contact with the gas-sensitive film;
> an insulator layer disposed next to the gas-sensitive semiconductor film; and
> at least one field electrode disposed next to the insulator layer and above and electrically in contact with the semiconductive substrate;
> where the insulator layer has a thickness that is less than about ten times a Debye length L_D of the gas-sensitive semiconductor film."

Claim 12 is patentable for at least the reasons set forth above with respect to claim 1. Specifically, claim 12 recites the feature that the at least one field electrode is disposed next to the insulator layer and above and electrically in contact with the semiconductive substrate. Again, the scope and content of Gardener merely indicates that the electrode 7 disclosed in Gardener is separated from the substrate 2 by the insulator 3, and thus the electrode 7 can not be electrically in contact with the semiconductive substrate.

4. Claim 9 currently stands rejected under 35 U.S.C. §103(a) for allegedly being obvious in view of Gardener and U.S. Patent 5,140,393 to Hijikihigawa (hereinafter "Hijikihigawa").

It is respectfully submitted that this rejection is now moot since claim 1 is patentable for at least the reasons set forth above.

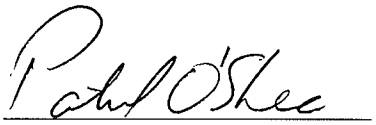
5. Claim 10 currently stands rejected under 35 U.S.C. §103(a) for allegedly being obvious I view of Gardener and U.S. Patent 5,143,696 to Haas et al. (hereinafter "Haas").

It is respectfully submitted that this rejection is now moot since claim 1 is patentable for at least the reasons set forth above.

For all the foregoing reasons, reconsideration and allowance of claims 1-12 and 14-17 is respectfully requested.

If a telephone interview could assist in the prosecution of this application, please call the undersigned attorney.

Respectfully submitted,



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